23: Franck--295 T-2 (1924) 1926 Laotians
116, 283

"Kapok falling from huge vegetable-cotton trees whitened the ground in large patches. Some of the tribes of Indo-China weave it into cloth."

23: Franck--343 T-2 (1924) 1926 Laotians
116, 248, 283, 286

"These Laosian villagers grow their own cotton, and the women spin this and the kapok of their great tropical trees on a crude wheel without a felly, then weave it on handlooms into the garment they wear as skirt or wrapper. Beneath many a house, or under the projecting porch roof at the end of it, may be seen the lady of the family, in the usual comfortable and economical upper garment of nothing at all, leisurely engaged at her household tasks, while others, some of them far from ugly, sit in the shade beneath their pile-raised dwellings weaving their simple wardrobes, in rather striking patterns and of excellent wearing qualities, on the crudest of looms, with a stick shuttle that is thrown back and forth by hand."

433 word, as regards everything connected with housing, furnishings,
472 clothing, household articles, etc. Everyone--men, women and even
463 children-- [454] is able to make the ordinary necessary articles by means of very simple methods and rudimentary tools. Thus it may be said that each house and each family represents a village in miniature.

The only industries really worthy of the name are embroidering on cloth, jewelry-making and working with gold and silver, ironmongery, brass-founding, pottery, basketry, the manufacture of certain lacquered articles, paper-making, wood and ivory carving, fresco painting, gold-washing and especially the making of pirogues, in which the natives show remarkable skill.

286 Weaving. The weaving of certain kinds of silk goods with
386 various shaded effects and often spangled with gold, as well as embroidering on cloth, is practiced by a certain number of women in every locality which is of any importance.

The looms used for weaving are extremely simple, and yet brocaded stuffs are made in which the designs are obtained, as before the invention of the Jacquard loom, by isolating or alternatively raising certain woof threads by means of thin strips of bamboo.

Vegetable dyes are used, that is to say that they are produced by trees or plants which grow in the country. Dyeing methods are simple, yet despite this fact the colors last for a long time thanks to a mordant composed of alum or lemon juice. The fundamental colors are blue (indigo), red, yellow and black. With the aid of these dyes the women are able, either by suitably proportioned mixtures or by various juxtapositions on the threads or on the cloth, to obtain a great variety of shades.

For some fifteen years now tinctorial powders have also been used which have an aniline base and are of German origin. But these dyes fall far short of being as colorfast and long-lasting as the local dyes. Their colors do not merge as well, and with them it is impossible to obtain the harmonious shades which the tinctorial products of Laos give to cloth and to thread.

283 [456] For spangled cloth goods and embroidery, the gold thread
286 in most widespread use is the one made by the Chinese. It consists of a strand of cotton on which a strip of paper gilded with fine gold a few tenths of a millimeter thick is wound in a spiral. Attempts have been made to introduce gold thread of European manufacture, but it has not met with favor on the part of the specialists, who have preferred the Chinese thread.

231 square of cotton.

Incubation. Each square of cotton containing silkworm eggs is hung up with its corners gathered together in the silkworm rearing-house. Here the surrounding temperature prevails in summer, and the house is slightly heated in winter. Great care is taken to protect the eggs from attacks by ants. Hatching occurs seven or eight days later, depending on the season, and the number of eggs hatched amount to about ten percent of the eggs placed in incubation, as we have just noted.

Rearing. From the time when incubation is over until the cocoons are spun, 34 or 35 days are reckoned, as follows:

1. From hatching to the end of the fourth mutation or age, four periods of six days each, or 24 days in all.

2. From the fourth mutation to the "rising," 8 to 10 days, at the end of which time each worm spins its cocoon within a space of one day.

Food is administered in the following proportions:

1. From hatching to the fourth mutation, three meals per day of finely chopped mulberry leaves.

2. From the fourth mutation to the rising, four meals per day of mulberry leaves which have been cut into four pieces if they are excessively large, or into two if they are of the usual size.

The transformation of the chrysalis into a moth takes place ten days after the cocoon is sealed. During the first three days of this period a selection is made of the finest cocoons, the insects in which will be used for reproduction. The other cocoons are then unwound.

At the present time and with the existing varieties of worms, about 800 raw cocoons empty of their insects are required to make up a weight of 100 grams. The cocoons may be either yellow or cream-colored, and their color can be predicted by examining the abdomen and rear legs of the worms. The yellow cocoons are the most numerous and represent about 75 percent of the total.

During the rearing period, silkworm losses due to disease generally amount to fifty percent.

• 283 231 Reeling off the cocoons and spinning the thread. These operations are carried out during the nine days which follow the formation of the cocoon, and before the moth has broken through. The methods employed are quite rudimentary, and consist in throwing some fifty cocoons into an earthenware pot containing boiling water. The pot is surmounted by a reel fastened to its rim. Nine or ten strands of silk coming from the same number of cocoons are wound

283 231 together with the aid of a slotted thread gauge to produce one thread of raw silk. Tension on the strands is provided by hand as they are wound, and the thread is wound on the drum of the reel. From this process there results an uneven thread with many nodosities, especially in the case of the third-grade thread which comes from the cocoon floss.

[147] **Production.** Fifty cocoons usually produce 2.25 grams of raw silk. This includes three different grades, in the following proportions:

1. First grade, glossy, fine and regular silk: 25 centigrams;
2. Second grade, less glossy silk, semi-fine and fairly regular: 50 centigrams;
3. Third grade, dull, coarse and irregular silk, 1.5 grams.

It is reckoned that 2,000 to 2,500 cocoons are required on the average to produce one kilogram of silk.

In summary, 800 raw and empty cocoons weigh 100 grams. When reeled off these 800 cocoons yield only 36 grams of silk. Thus there is a loss of 64 grams, representing 64 percent of the weight of the cocoons and thereby constituting a waste product composed of unwindable fragments, whereas the amount which can be utilized is only 36 percent (1).

(1) Report by P. Macey.

[148]

APPENDIX XXV
NOTE ON THE CULTIVATION OF OPIUM POPPIES

249 Poppies are grown in all the high regions inhabited by the Meos and especially in the north of Upper Laos. But the latter scarcely grow any but the amount which they themselves need each year, and are content merely with selling their surplus, if there is any.

Their method of cultivation is extremely primitive. They begin by burning the trees and brush in order to clear the soil, then spade up the ground to a depth of about five centimeters and sow the seed in the first two weeks of September. They try to choose hillsides which are exposed to the rising sun, and do not irrigate the land.

If rain is plentiful they obtain one or two capsules per plant by this manner, on the average. If rain is scarce, then the yield is nil. They do not use any kind of fertilizer.

Poppies thrive especially in clay soil with a substantial sound